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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/593,761	06/14/2000	YUTAKA YANO	169078/99	8044

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EXAMINER

PHAN, HANH

ART UNIT	PAPER NUMBER
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2633

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DATE MAILED: 03/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/593,761

Applicant(s)

YANO, YUTAKA

Examiner

Hanh Phan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 June 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 9-17 is/are rejected.
- 7) ☒ Claim(s) 6-8 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 6) ☐ Other: _____.

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DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. Figures 11-15 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Nomura et al (U.S. Patent number 5,739,934).

Regarding claim 1, referring to figure 2, Nomura discloses a wavelength-division multiplexed optical transmission system for transmitting an optical signal using frames via an

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optical fiber transmitting line (5), comprising a device (1-1, 10-1, 2-1)(Fig. 2) for reducing mutual interference among a plurality of wavelength channels (i.e., λ_1 , λ_2 , ..., λ_n)(Fig. 2) which are transmitted through a same optical fiber transmitting line (5)(col. 3, lines 52-67, and col. 3, lines 1-37).

Regarding claim 2, Nomura discloses a transmitter (i.e., 2-1, 2-2, 2-n)(Fig. 2) for converting an inputted electric signal (main signal CH1) into the optical signal and transmitting the optical signal; a receiver (8-1), 8-2, 8-n)(Fig. 2) for receiving said transmitted optical signal.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nomura et al (U.S. Patent number 5,739,934) in view of Hadano (Europe Patent Publication number 0543327 A1).

Regarding claim 3, Nomura differs from claim 3 in that he does not specifically teach any one of: a unit for mutually differing transmitting frame phases between at least two or more wavelength channels among a plurality of wavelength channels which are transmitted through a same optical fiber transmitting line; a unit for inserting mutually differing dummy data patterns

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which are different each other among the wavelength channels; and a unit for scrambling said electric signals with mutually different scrambling patterns. However, Hadano teaches a unit for mutually differing transmitting frame phases between at least two or more channels among which are transmitted through a same optical fiber transmitting line (Fig. 1, col. 2, lines 19-58 and col. 3, lines 1-43). One skilled in the art would have recognized that providing unit for mutually differing transmitting frame phases between at least two or more wavelength channels among a plurality of wavelength channels which are transmitted through a same optical fiber transmitting line have the advantage of allowing the correlation of data patterns among channels reduced to the low level, a stable transmitting quality assurance, and preventing large cross phase modulation and cross gain modulation from occurring when the correlation of data patterns among channels is strong. Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to incorporate the unit for mutually differing transmitting frame phases between at least two or more channels among which are transmitted through a same optical fiber transmitting line as taught by Hadano in the system of Nomura in order to keep the correlation of data patterns among channels to the low level, a stable transmitting quality assurance, and preventing large cross phase modulation and cross gain modulation from occurring when the correlation of data patterns among channels is strong.

Regarding claim 4, Nomura differs from claim 4 in that he does not specifically teach a frame phase updating unit for mutually differing transmitting frame phases between at least two or more wavelength channels among a plurality of wavelength channels which are transmitted

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through a same optical fiber transmitting line. However, Hadano teaches a frame phase updating unit for mutually differing transmitting frame phases between at least two or more channels among a plurality of channels which are transmitted through a same optical fiber transmitting line (col. 3, lines 12-30). One skilled in the art would have recognized that providing a frame phase updating unit for mutually differing transmitting frame phases between at least two or more wavelength channels among a plurality of wavelength channels which are transmitted through a same optical fiber transmitting line have the advantage of allowing to update the transmitting frame phases of channels such that to differ the transmitting frame phases of channels each other. Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to incorporate the frame phase updating unit as taught by Hadano in the system of Nomura in order to update the transmitting frame phases of channels such that to differ the transmitting frame phases of channels each other.

Regarding claim 5, the combination of Nomura and Hadano teaches a frame configuration unit for configuring frames of wavelength channels from a signal to be transmitted to said optical fiber transmitting line and selecting an output signal frame phase itself at random (Figs. 1 and 2 of Nomura, col. 3, lines 1-67, and col. 4, lines 1-37 and Fig. 1 of Hadano).

7. Claims 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tochio (U.S. Patent number 6,215,567) in view of Faulkner et al (U.S. Patent number 5,453,865).

Regarding claim 9, referring to figure 17, Tochio discloses a wavelength division multiplexed optical transmission system using a data scrambler (50) comprising a scrambling

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circuit (53) for mutually differing scrambling patterns between at least two or more wavelength channels among a wavelength channel group which is transmitted through a same optical fiber transmitting line (col. 19, lines 4-67, and col. 20, lines 1-37).

Tochio differs from claim 9 in that he does not specifically teach a data scrambler based on a pseudo random pattern. However, Faulkner teaches data scrambler based on a pseudo random pattern (Fig. 1, col. 2, lines 56-67, and col. 3, lines 1-15). One skilled in the art would have recognized that providing a data scrambler based on a pseudo random pattern have the advantage of allowing to ensure that the data stream has a long autocorrelation length. Therefore, it would have been obvious to one ordinary skill in the art at the time the invention was made to incorporate the data scrambler based on a pseudo random pattern as taught by Faulkner in the system of Tochio in order to ensure that the data stream has a long autocorrelation length.

Regarding claim 10, Tochio further teaches the scrambling unit for embedding a kind of an applying scrambling pattern to a portion in a transmitting data signal which is not scrambled and transmitting data to a receiving terminal (Fig. 17, col. 19, lines 4-67, and col. 20, lines 1-37).

Regarding claim 11, Tochio further teaches a scrambling pattern generating unit (53)(Fig. 17) for communicating a kind of an applying scrambling pattern to a receiving terminal through a control line which is different from a transmitting signal line (col. 19, lines 4-67, and col. 20, lines 1-37).

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Regarding claim 12, Tochio further teaches the scrambling circuit further comprising a unit for enabling transmitters to select one of a plurality of scrambling patterns at random (Fig. 17, col. 20, lines 4-37).

Regarding claim 13, Tochio further teaches a controller (12A)(Fig. 17) for monitoring and setting a scrambling pattern (53) used for the wavelength channels, wherein said controller has means for setting the scrambling pattern so as to mutually differing the scrambling patterns among a wavelength channel group which is transmitted through said same optical fiber transmitting line (col. 19, lines 4-67, and col. 20, lines 1-37).

8. Claims 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nomura et al (U.S. Patent number 5,739,934) in view of Araki et al (U.S. Patent number 6,441,935).

Regarding claim 14, Nomura differs from claim 14 in that he does not specifically teach a dummy data generating circuit for mutually differing dummy data patterns between at least two or more wavelength channels among a wavelength channel group which is transmitted through a same optical fiber transmitting line. However, Araki teaches a dummy data generating circuit for mutually differing dummy data patterns between at least two or more wavelength channels (Fig. 5, col. 13, lines 38-67, and col. 14, lines 1-20). One skilled in the art would have recognized that providing a dummy data generating circuit for mutually differing dummy data patterns between at least two or more wavelength channels among a wavelength channel group which is transmitted through a same optical fiber transmitting line have the advantage of allowing to eliminate the malfunction of data drop-out in the optical/electrical converter during

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length of time in which there is no transmission data. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the dummy data generating circuit as taught by Araki in the system of Nomura in order to eliminate the malfunction of data drop-out in the optical/electrical converter during length of time in which there is no transmission data.

Regarding claims 15 and 16, the combination of Nomura and Araki teaches the dummy data generating circuit further comprising a circuit for using a pattern which is different each other by depending on a transmitter and selected at random as an invalid data pattern (Figs. 2 and 5 of Araki).

Regarding claim 17, the combination of Nomura and Araki teaches the dummy data generating circuit further comprising a circuit for presetting it to mutually differ dummy data patterns by depending on transmitters (Figs. 2 and 5 of Araki, col. 13, lines 38-67, and col. 14, lines 1-20).

8. Claims 6-8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Tajima (U.S. Patent number 6,366,377) teaches optical network.

Fisher et al (U.S. Patent number 6,075,628) teaches optical communication system.

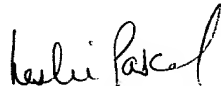
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Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh Phan whose telephone number is (703)306-5840.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached on (703)305-4729. The fax phone number for the organization where this application or proceeding is assigned is (703)872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-4700.


LESLIE PASCAL
PRIMARY EXAMINER